

1 **REBUTTAL TESTIMONY OF**
2 **JOSEPH M. LYNCH**
3 **ON BEHALF OF**
4 **SOUTH CAROLINA ELECTRIC & GAS COMPANY**
5 **DOCKET NO. 2004-178-E**
6

7 **Q. Please state your name, business address and current position with South**
8 **Carolina Electric and Gas Company.**

9 A. Joseph M. Lynch, 1426 Main Street, Columbia, South Carolina. My current position
10 is Manager of Resource Planning.

11 **Q. Have you testified previously in these proceedings?**

12 A. No.

13 **Q. Describe your educational background and professional experience.**

14 A. I graduated from St. Francis College in Brooklyn, New York with a Bachelor of
15 Science degree in mathematics. From the University of South Carolina I received a
16 Master of Arts degree in mathematics, an MBA and a Ph.D. in management science and
17 finance. I was employed by SCE&G as a Senior Budget Analyst in 1977 to develop
18 econometric models to forecast electric sales and revenue. In 1980, I was promoted to
19 Supervisor of the Load Research Department. In 1985, I became Supervisor of
20 Regulatory Research where I was responsible for load research and electric rate design.
21 In 1989, I became Supervisor of Forecasting and Regulatory Research, and, in 1991, I
22 was promoted to my current position of Manager of Resource Planning.

23 **Q. Briefly summarize your current duties.**

24 A. As manager of Resource Planning I am responsible for producing SCE&G's forecast
25 of energy, peak demand and revenue; for developing the Company's generation
26 expansion plans; and for overseeing the Company's load research program.

27 **Q. What is the purpose of your testimony?**

28 A. The purpose of my testimony is to correct some of the errors in Dr. Dismukes' direct
29 testimony. In particular, he includes two of the exhibits presented by me in the Jasper
30 Siting Hearing and misinterprets their meaning.

1 **Q. Exhibit DED-8 is a replica of Company Exhibit JML-4 from the Jasper Siting**
2 **Hearing. Does Dr. Dismukes misinterpret this document?**

3 A. On page 31 of his testimony, he characterizes this exhibit as an “apples-to-oranges”
4 comparison suggesting that it misleads the Commission. This shows that he doesn’t
5 understand our planning process and the logic behind the Company’s decision to build
6 Jasper nor the summary information presented in this exhibit that demonstrates our
7 decision to be the correct one, namely, the one that will produce the lowest rates for our
8 native load customers.

9 **Q. Explain the exhibit and the planning process reflected in it.**

10 A. The first step in the planning process is to forecast the firm peak demand, compare it
11 to existing capacity and ascertain the need for additional resources. Since peaking units
12 (gas fired combustion turbines) have the lowest capital costs, we use them to construct
13 our standard base case. We first model the costs of meeting the need for new capacity by
14 an expansion plan containing peaking units only. In the Jasper exhibit DED-8, our “all
15 peaker” expansion plan is labeled “CT” (Combustion Turbines) and it becomes the
16 reference plan to beat. We then want to determine if there is another expansion option
17 that can create a lower total cost for customers.

18 Our next step then is to consider expansion plans with higher capital costs but
19 lower energy costs. In the Jasper exhibit, we show the results of two such expansion
20 plans: a scenario relying on intermediate generation units (i.e., combined cycle gas
21 turbines) and a baseload scenario relying on coal generation units. The intermediate
22 scenario labeled “CC449” added a gas-fired combined cycle plant as our next unit. A
23 combined cycle unit increased the capital costs over the “all peaker” plan but lowered the
24 operating costs because it burns natural gas more efficiently i.e., it has a better heat rate.
25 We took this trade-off between capital costs and operating costs a step further by
26 considering a coal option, labeled “COAL” in Exhibit DED-8. A coal plant has higher
27 capital costs than either a peaker or a combined cycle plant, but it has lower operating
28 costs because it can burn coal--generally a cheaper fuel than natural gas.

29 When you compare these three expansion plans in Exhibit DED-8, you see that
30 the “CC449” plan has the lowest revenue requirements and therefore is a better strategy
31 than either a pure peaker strategy or a coal strategy.

1 Having decided that a combined cycle plant was the appropriate type of plant, we
2 then began looking for ways to capture additional cost saving benefits from economies of
3 scale and construction. Economies of scale and construction can be created by increasing
4 the megawatt output of the plant.

5 The “CC449” plant was configured with two combustion turbines and one steam
6 turbine. We looked at adding duct-firing, then inlet chilling and then both duct-firing and
7 inlet chilling to this configuration. All of these additions increased the capacity and cost
8 of the plant. We also analyzed adding a third combustion turbine and increasing the
9 capacity of the steam turbine. And again we added duct-firing, then inlet chilling and then
10 both to this expanded configuration.

11 In comparing all these different plant configurations, we concluded that we did
12 not want to lose the opportunity of capturing the economies of scale and construction
13 associated with building an 875 MW Jasper plant. But as things stood we could not
14 justify building such a large plant because it would increase rates to our native load
15 customers. Our goal became to see if we could sell some capacity in the market and
16 thereby offset the cost of this option to our native load customers, especially in the initial
17 years when customers’ need for the additional capacity was not so great. In fact, we were
18 able to sell 250MWs of firm capacity to NCEMC. When the revenue from this sale was
19 included in the 875 MW option, it offset the additional capital cost in the initial years and
20 this option was shown to be the lowest cost plan.

21 The 875MW Jasper Plant along with the NCEMC 250 MW firm sale is labeled
22 “CC875” in Exhibit DED-8.

23 **Q. Why weren’t the results of all these various configurations of the Jasper Plant**
24 **presented in your testimony?**

25 A. I did not include the results from all these configurations in my testimony in the Jasper
26 siting case because they all had the same goal of capturing economies of scale and
27 construction. I only included the best of these strategies, the “CC875” strategy. There
28 were many more scenarios studied that lead us to the few presented in testimony. I think
29 it is important to understand that we are constantly planning. The Company’s load
30 increases every year and we are constantly reviewing the need for capacity on the
31 horizon.

1 **Q. If the NCEMC contract lowers rates for the native load customers, how can Dr.**
2 **Dismukes claim otherwise on page 33 when he refers to his analysis in Exhibit**
3 **DED-9?**

4 A. His analysis is flawed in several aspects:

- 5 1. His analysis is not comprehensive. It is limited to a comparison of the NCEMC
6 contract revenue and the Jasper Plant capital costs. A correct analysis would look
7 at the total revenue requirements including how a strategy affects the dispatch and
8 operating costs of all our power plants. This comprehensive analysis is the basis
9 for SCE&G's study which is summarized in Exhibit DED-8.
- 10 2. His analysis only looks at three years. SCE&G's goal is to lower rates in the
11 short-term and the long-term. That is why our analysis looks out 20 years.
- 12 3. Finally, although he claims to be using the incremental capital costs associated
13 with developing the 875MW configuration over the 449MW, he seems to be
14 actually using average costs, i.e., a 48.7% share of the cost of the 875 MW plant
15 (\$232.0 vs. \$476.4). It's not clear to me why this 48.7% factor is used.

16 **Q. Could he have used the Company's exhibit replicated as Exhibit DED-8 to do the**
17 **same analysis correctly?**

18 A. Yes, but of course it would have produced a different and also correct conclusion. If
19 you refer to the bottom section of Exhibit DED-8, you see that the Company has provided
20 the revenue requirements for each scenario for each year. So we see that the CC875
21 scenario has higher costs in 2004 than the CC449 (\$547.1 million vs. \$539.9 million).
22 But in every year after that, the CC875 is the lower cost strategy. The first four years of
23 differences in years 2004 through 2007, respectively, are: \$7.2, \$-3.2, \$-4.7 and \$-15.8
24 million. If you limit the analysis to the first three years, you would conclude that these
25 two strategies are about breakeven. But you would have ignored the 2007 jump in
26 savings to customers of \$15.8 million in the fourth year. Let's take this analysis a little
27 further. Consider the differences in costs when the NCEMC contract expires. For the
28 years 2013 through 2015, the differences are respectively: \$-12.5, \$-29.0 and \$-47.5
29 million. In other words, the 875 MW Jasper configuration coupled with the 250 MW
30 NCEMC sale is cheaper for retail customers for every year except 2004, and over the 20
31 year planning horizon saves customers a total of \$179.8 million discounted to present

1 dollars. The benefits of the approach are significant when the NCEMC contract expires
2 and the associated capacity is free to serve our native load.

3 That is why I say that Dr. Dismukes misunderstands our capacity planning when
4 he states that the retail customers are subsidizing the NCEMC sale. The NCEMC sale
5 has allowed the Company to capture economies of scale and construction in building the
6 Jasper plant that are worth millions of dollars to customers in decreased costs over the
7 life of the plant. The financial bridge that has allowed us to capture those economies of
8 scale and construction is the NCEMC sale. Dr. Dismukes could not be more wrong in
9 saying that the NCEMC sale is somehow not in customers' best interest.

10 **Q. From exhibit DED-8 can you tell whether SCE&G native load customers are**
11 **subsidizing NCEMC customers?**

12 A. Since SCE&G's native load customers are benefiting through lower rates by the
13 NCEMC contract, I would have to conclude that they are not subsidizing NCEMC's
14 customers.

15 **Q. In its planning did SCE&G consider the option of purchasing power in the**
16 **market instead of self-building?**

17 A. Yes it was considered and rejected. The Company decided not to issue an RFP for a
18 number of reasons that were discussed as part of the Jasper Siting Hearing both in
19 testimony and through discovery. In Order No. 2002-19, the Commission concluded the
20 following on page12: "...we find and conclude that the Company's decision-making
21 process which considered, but rejected purchased power, was adequate and prudent."

22 **Q. On page 21 Dr. Dismukes refers to his exhibit DED-5 which is a replica of**
23 **another Company exhibit from the Jasper Siting Hearing and concludes that there**
24 **are considerable differences in supply needs being presented to the Commission by**
25 **SCE&G between now and then. Is this true?**

26 A. No, it is not. In a number of places in his testimony, Dr. Dismukes suggests the
27 forecast is inaccurate, resulting in significant changes in reported supply needs and
28 excessive reserve margins. There is no need to respond to every one of these utterances.
29 A simple way to cut through all this disinformation is to check the peak demand forecast
30 which drives the supply needs. So, for example, in Exhibit DED-5 the Company
31 projected a firm peak demand for the native load customers in 2005 of 4,612 MWs. This

1 forecast was made in the summer of 2001, so it is a four-year ahead projection. In the
2 Company's 2004 IRP, we project a firm peak demand for native load customers of 4,593
3 MWs. This is 19MWs or only 0.4% lower than the projection made in the Jasper siting
4 case. A 19MW or 0.4% swing in the forecast over four years is not significant and any
5 calculation of reserve margin or supply need that suggests otherwise is flawed and
6 misleading.

7 **Q. What about Dr. Dismukes' claim made on page 16 that the current forecast is**
8 **"optimistic" because it has a growth rate of 2.3% while 2.1% seems more**
9 **appropriate?**

10 A. First of all, whether projecting peak demands, energy sales or revenues, our
11 Forecasting Department is required by management to produce a realistic forecast, not an
12 optimistic or a pessimistic one. Each summer we enter our annual planning cycle and all
13 statistical forecasting models are updated with new data; new projections of economic
14 growth are collected; and a new forecast is produced. By updating the forecast each year
15 in this way, our forecasting process is in a sense self-correcting and will produce
16 reasonably accurate projections. Regarding the difference between a 2.3% and a 2.1%
17 growth rate, I don't believe it's significant. Consider that over the next five years the
18 difference between a 2.3% growth rate and a 2.1% growth rate will result in a peak
19 demand that is 0.2%, 0.4%, 0.6%, 0.8% and 1.0% higher respectively. A 1.0% difference
20 which represents about 50MWs, is not an unreasonable forecast variance in a five year
21 projection. If you extend this analysis for twenty years, the difference grows to 4.0%
22 which is more significant. However, even this is not critical when you consider that,
23 while the Company has a planning horizon of 20 years or more, it makes decisions based
24 on projections that are closer to the time of actual need.

25 **Q. Dr. Dismukes claims that the NCEMC load cannot be firm and recallable, and if**
26 **firm, should not be included in determining rates. In the Company's resource plan,**
27 **is the NCEMC contract considered firm or recallable and is the distinction**
28 **important?**

29 A. In our resource plans, the NCEMC contract is considered a firm obligation of the
30 Company. It's worth re-iterating, as Dr. Dismukes points out on page 38, that NCEMC
31 considers this as a firm resource to serve its customers and consequently points to it as

1 such when reporting loads and resources to SERC. However, NCEMC has a lesser claim
2 on our resources than do native load customers, so that in a capacity shortage emergency,
3 the NCEMC capacity will be curtailed before firm native load customers are interrupted.
4 In this sense it is curtailable. From a resource planning perspective, this fact is not very
5 relevant because the Company does not expect to ever be short of capacity in meeting its
6 firm load obligations. Our reserve margin policy is designed so that the possibility of a
7 shortage is practically zero. In fact, to my knowledge, in the Company's history it has
8 never failed to meet its firm obligations because of a capacity shortage.

9 **Q. Since the NCEMC contract is firm, should it be separated from the ratemaking**
10 **process?**

11 A. No. As explained above in our planning process, SCE&G entered into this firm
12 obligation with NCEMC on behalf of its native load customers just as it has entered into a
13 financial obligation by building the Jasper Plant, also on behalf of native load customers.
14 If the opportunity to sell capacity to NCEMC or something equivalent had not been
15 found, then SCE&G would not have taken advantage of the opportunity to capture the
16 economies associated with a larger Jasper Plant because the opportunity would have
17 resulted in higher rates for our native load customers. However, because the NCEMC
18 contract offsets the incremental cost of the larger Jasper Plant, building the larger plant
19 does result in lower costs to native load customers. Both were opportunities that the
20 Company took advantage of on behalf of native load customers. I don't see how you can
21 treat them differently for ratemaking purposes.

22 **Q. Is it appropriate to include the NCEMC contract in the Company's reserve**
23 **margin calculation?**

24 A. Yes, it is. As discussed above, the NCEMC contract represents a firm obligation
25 entered into by the Company on behalf of its native load customers, and although it
26 represents a lesser claim on our capacity than native load customers, it represents a firm
27 sale, and it is appropriate to include it in the calculation of reserves.

28 **Q. What is SCE&G's reserve margin with the Jasper Plant in service?**

29 A. This is documented in our 2004 IRP. We projected a 19.8% reserve margin for 2004.
30 In 2005 when new rates go into effect, we expect it to be 17.7%. For the years 2006 and
31 2007, it is projected to be 17.6% and 15.0% respectively.

1 **Q. Does this conclude your testimony?**

2 A. Yes.